



$I(J^P) = 0(\frac{1}{2}^+)$  Status: \*\*\*  
 $I, J, P$  need confirmation.

In the quark model  $\Omega_b^-$  is ssb ground state. None of its quantum numbers has been measured.

## $\Omega_b^-$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>6071 ± 40 OUR AVERAGE</b>	Error includes scale factor of 6.2.		
6054.4 ± 6.8 ± 0.9	<sup>1</sup> AALTONEN 09AP CDF	$p\bar{p}$ at 1.96 TeV	
6165 ± 10 ± 13	<sup>2</sup> ABAZOV 08AL D0	$p\bar{p}$ at 1.96 TeV	
1 Observed in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays with $16^{+6}_{-4}$ candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.			NODE=S063M;LINKAGE=AA
2 Observed in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays with $17.8 \pm 4.9 \pm 0.8$ candidates, a significance of 5.4 sigma.			NODE=S063M;LINKAGE=AB

## $\Omega_b^-$ MEAN LIFE

VALUE ( $10^{-12}$ s)	DOCUMENT ID	TECN	COMMENT
<b>1.13<sup>+0.53</sup><sub>-0.40</sub> ± 0.02</b>	<sup>3</sup> AALTONEN 09AP CDF	$p\bar{p}$ at 1.96 TeV	
3 Observed in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays with $16^{+6}_{-4}$ candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.			NODE=S063T;LINKAGE=AA

## $\Omega_b^-$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \quad J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)$	$(2.9^{+1.1}_{-0.8}) \times 10^{-6}$

## $\Omega_b^-$ BRANCHING RATIOS

$\Gamma(J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)) / \Gamma_{\text{total}}$	$\Gamma_1 / \Gamma$
<b>0.029<sup>+0.011</sup><sub>-0.008</sub> OUR AVERAGE</b>	
0.026 <sup>+0.010</sup> <sub>-0.007</sub> ± 0.004	<sup>4</sup> AALTONEN 09AP CDF $p\bar{p}$ at 1.96 TeV
0.08 ± 0.04 ± 0.02	<sup>5</sup> ABAZOV 08AL D0 $p\bar{p}$ at 1.96 TeV
4 AALTONEN 09AP reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)) / \Gamma_{\text{total}}] / [B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0))] = 0.045^{+0.017}_{-0.012} \pm 0.004$ which we multiply by our best value $B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0)) = (5.8 \pm 0.8) \times 10^{-5}$ . Our first error is their experiment's error and our second error is the systematic error from using our best value.	NODE=S063R01;LINKAGE=AA
5 ABAZOV 08AL reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)) / \Gamma_{\text{total}}] / [B(\Xi_b^- \rightarrow J/\psi \Xi^- \times B(b \rightarrow \Xi_b^-))] = 0.80 \pm 0.32^{+0.14}_{-0.22}$ which we multiply by our best value $B(\Xi_b^- \rightarrow J/\psi \Xi^- \times B(b \rightarrow \Xi_b^-)) = (1.02^{+0.26}_{-0.21}) \times 10^{-5}$ . Our first error is their experiment's error and our second error is the systematic error from using our best value.	NODE=S063R01;LINKAGE=AB

## $\Omega_b^-$ REFERENCES

AALTONEN 09AP PR D80 072003  
ABAZOV 08AL PRL 101 232002

T. Aaltonen *et al.*  
V.M. Abazov *et al.*

(CDF Collab.)  
(D0 Collab.)

NODE=S063

NODE=S063

NODE=S063M

NODE=S063M

NODE=S063M;LINKAGE=AA

NODE=S063M;LINKAGE=AB

NODE=S063T

NODE=S063T

NODE=S063T;LINKAGE=AA

NODE=S063210;NODE=S063

DESIG=1

NODE=S063215

NODE=S063R01  
NODE=S063R01

NODE=S063R01;LINKAGE=AA

NODE=S063R01;LINKAGE=AB

NODE=S063

REFID=53055  
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